

## DRAWINGS ATTACHED

1 326 704

- (21) Application No. 3578/72 (22) Filed 26 Jan. 1972 (19)  
 (31) Convention Application Nos.  
                                 G71 03 933.3 (32) Filed 3 Feb. 1971  
                                 G71 05 258.9 12 Feb 1971 in  
 (33) Germany (DT)  
 (44) Complete Specification published 15 Aug. 1973  
 (51) International Classification A63B 21/00 G01L 5/02  
 (52) Index at acceptance  
           A6M 8D1B 8D1Y 8DY 8F  
           G1W E6B



## (54) EXERCISING EQUIPMENT

(71) I, NORDFRIED CZECHERSKI, a citizen of the Federal German Republic, of 6711 Frankenthal-Flomersheim, Freinsheimer Str. 88, Germany, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to exercising equipment and is concerned with an equipment used to measure and increase muscle power exerted by the forearm of a user of the equipment in pivoting his forearm about his elbow joint. Such equipment might be used for sporting purposes in comparing the relative strengths of a number of competitors.

The equipment provided by this invention comprises a base on which is mounted a vertical rod with a handgrip capable of vertical adjustment on this rod, said rod being movable by the user grasping the handgrip and exerting pressure on the rod by exercise of his forearm muscles to move the rod against a resilient restoring action.

The resilient pivoting movement may be accomplished by making the rod resiliently bendable and affixing one end thereof to the base plate, or by connecting the rod to the base plate by a fulcrum about which the rod may be pivoted against a resilient resistance.

The above and other objects and features of the present invention will become more apparent in the following detailed description of certain now preferred embodiments, taken in conjunction with the accompanying drawing wherein:

Figure 1 is a front elevational view of one embodiment of the sporting equipment according to this invention,

Figure 2 is a side elevational view of this equipment, partly in section, and

Figures 3 to 5 are front elevational views of three additional embodiments.

Referring now to the drawing wherein like reference numerals designate like parts functioning in a like manner in all figures, Figures 1 and 2 show a base plate 1 which may be clamped or otherwise fastened on a table, for instance, to permit convenient use of the equipment by a person who wishes to train his forearm muscles and measure their strength. This base plate 1 is assumed to be rectangular but it could be of other shape, for example, oval or round. In the embodiment of figures 1 and 2, a hard steel insert 2 is mounted in base plate 1 adjacent one edge thereof, the insert having a bore for receiving one end of a resiliently bendable rod 3. Preferably, the rod is of polygonal, for instance, rectangular cross section to fit snugly into the bore of like cross section in insert 2 so that the rod is held affixed to the base plate 1 when its one end is inserted into the bore. A hand grip 7 is vertically adjustably mounted on rod 3, being held thereon by a set screw, for instance (not shown). As shown in Figure 2, the hand grip is knurled to provide improved engagement with the hand of the user and extends perpendicularly from the rod to form a vertical plane therewith which is perpendicular to the pivoting plane of rod 3, which is indicated by arrow 9. The base plate defines a recess 8 in this perpendicular plane for receiving and supporting the elbow joint of the user.

The resiliently bendable rod 3 carries a scale 4 which has markings 5 cooperating with an indicator finger 6 affixed to base plate 1 to indicate the pivoting angle of the rod and thus the force exerted upon the resilient rod by a user whose hand grips handle 7 while his elbow rests in recess 8. The scale 4 may be graduated to indicate units of the force which are required to move it in relation to the indicator finger 6 and these graduations may be marked with alternative measurements calibrated to different positions of handle 7 along rod 3. Alter-

[

natively different positions of handle 7 may be correlated to different replaceable scales 4.

In use, the base plate 1 is clamped or otherwise fixed to a table or other supporting surface, and the hand grip height on the rod is adjusted to the length of the user's forearm.

The embodiments of Figures 2 to 5 operate on the same principle and function equivalently with modified structures which will now be described insofar as they differ from the equipment of Figures 1 and 2. In these embodiments, the rod is stiff or rigid and a fulcrum connects the rod to the base plate to enable the rod to be pivoted about the fulcrum, spring means being mounted laterally of the rod to counteract the pivoting movement of the rod resiliently.

In Figure 3, a pair of shoulders 11, 11 are mounted on the base plate laterally on respective sides of the rod and the fulcrum 10 connects one end of the rod to the base plate. A pair of springs 12, 12 are mounted between the rod and respective ones of shoulders 11, 11. The springs may be helical springs, rubber springs, fluid pressure springs and the like spring means, and are subjected to tension and/or compression when the rod 3 is moved in the direction of arrow 9.

The embodiment of Figure 4 comprises a mounting 13 mounted on base plate 1, and the fulcrum 10 is mounted on the support and connects the rod 3 to the base plate 1 intermediate the hand grip 7 and one end of the rod. This one end extends into a recess 14 in the base plate between a pair of springs 12, 12 which are mounted in recess 14.

Figure 5 shows a base plate 1 wherein the fulcrum 10 in a slot in base plate 1 connects one end of rod 3 to the base plate in a manner similar to that shown in Figure 3. A substantially horizontal lever arm 15 is affixed to the rod intermediate the one pivotally connected rod end and the hand grip 7. In this embodiment, the spring means consists of a pair of springs 12, 12 mounted between the lever arm and the base plate.

In the embodiments of Figures 3 to 5, the scale 4 is stationarily mounted on the base plate adjacent the pivoting plane of the rod so that the angular position of the rod directly indicates the muscle pressure on the cooperating scale which is, of course, calibrated in any desired manner to show units of strength.

If desired, the rod may be held inoperative by a coin-operative locking mechanism so that the equipment may be operated only after a coin is deposited.

#### WHAT I CLAIM IS:—

1. Exercising equipment for indicating and improving muscle power of the forearm of a user, or for sporting purposes comprising a base on which is mounted a vertical rod with a handgrip capable of vertical positional adjustment on this rod, said rod being movable by the user grasping the handgrip and exerting a force on the rod by exercise of his forearm muscles to move the rod against a resilient restoring action.

2. Exercising equipment according to Claim 1, in which the rod is resiliently bendable and has one end affixed to the base.

3. Exercising equipment according to Claim 2, in which the base is in the form of a plate with a hard steel insert with a bore for receiving one end of the rod.

4. Exercising equipment according to Claim 1, in which the rod is of a rigid construction and pivotally mounted on the base, and the resilient restoring action is provided by spring means connected between the rod and a fixed support or supports.

5. Exercising equipment according to Claim 4, in which there are two supports in the form of shoulders upstanding from the base on either side of the rod, and compression and/or tension springs are connected between the rod and these shoulders.

6. Exercising equipment according to Claim 4, in which the rod is pivoted between its ends on a mounting upstanding from said base, the upper end of the rod carrying the handgrip and the lower end of the rod being connected to spring means housed in or on said base.

7. Exercising equipment according to Claim 4, in which the rod is pivoted to the base at its lower end and has a substantially horizontal lever arm secured between its ends, whilst the spring means are disposed between this lever arm and the base.

8. Exercising equipment according to any of Claims 1 to 7, further including scale means for signalling the deformation or degree of movement of the rod under the manual action of the user.

9. Exercising equipment according to Claim 8, in which the scale is carried by, and is movable with, the rod in cooperation with a fixed pointer on the base.

10. Exercising equipment according to any of Claims 1 to 9, in which the handgrip extends perpendicularly from the rod and is knurled.

11. Exercising equipment according to any of Claims 1 to 10 in which the base is provided with a recess for receiving, supporting and positioning the elbow of the user.

12. Exercising equipment, substantially as herein described with reference to Figures 1 and 2, Figure 3, Figure 4 or Figure 5 of the accompanying drawings.

E. N. LEWIS & TAYLOR,  
144 New Walk, Leicester LE1 7JA.  
Chartered Patent Agents,  
Agents for the Applicant.

Printed for Her Majesty's Stationery Office by Burgess & Son (Abingdon), Ltd.—1973.  
Published at The Patent Office, 25 Southampton Buildings, London, WC2A 1AY  
from which copies may be obtained.

Fig.1

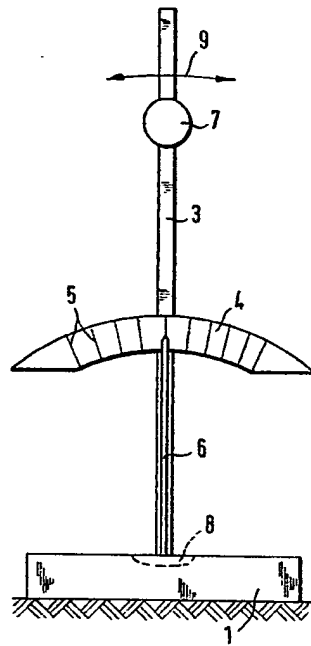


Fig.2

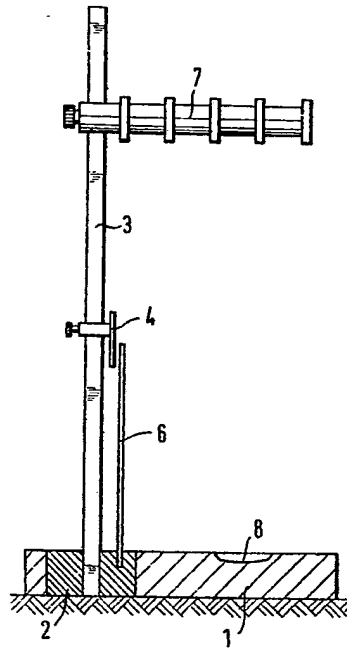


Fig.3

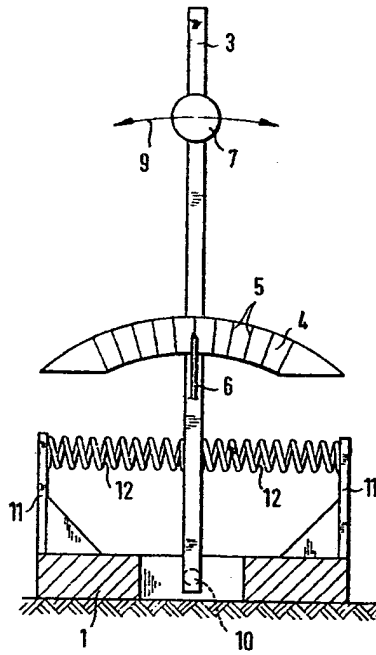


Fig.4

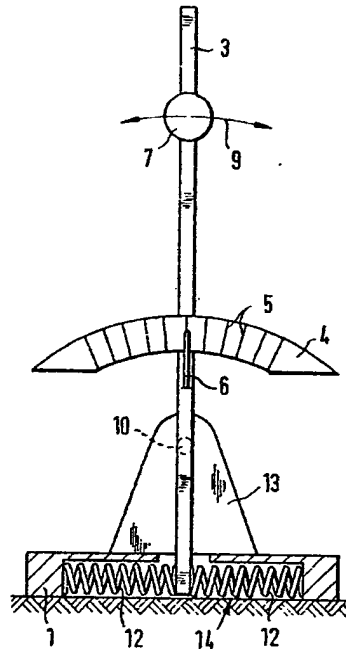


Fig.5

